

USS VIRGINIA Maiden Deployment

USS VIRGINIA

CDR Todd Cramer



New Construction to Proven Platform in 6 Years

- Keel Laid: 2 Sep 99
- Christened: 16 Aug 03
- Commissioned: 23 Oct 04
- Deployed: 25 Aug - 23 Nov 05
- On Station: 16 Sep - 7 Oct 05



Sea Trials to On Station ...

- **VIRGINIA Class**
 - Transformational / untested design
- **New construction submarines**
 - Typically deploy after PSA & OPEVAL
- **SOUTHCOM – Low risk deployment**
 - Assess design & employment of unique systems while filling COCOM need



USS VIRGINIA

Decision-Centric Attack Center

**Ship Control
Station**

**Command
Work Station**

Sonar

Navigation

**Photonic Mast
Work Station**

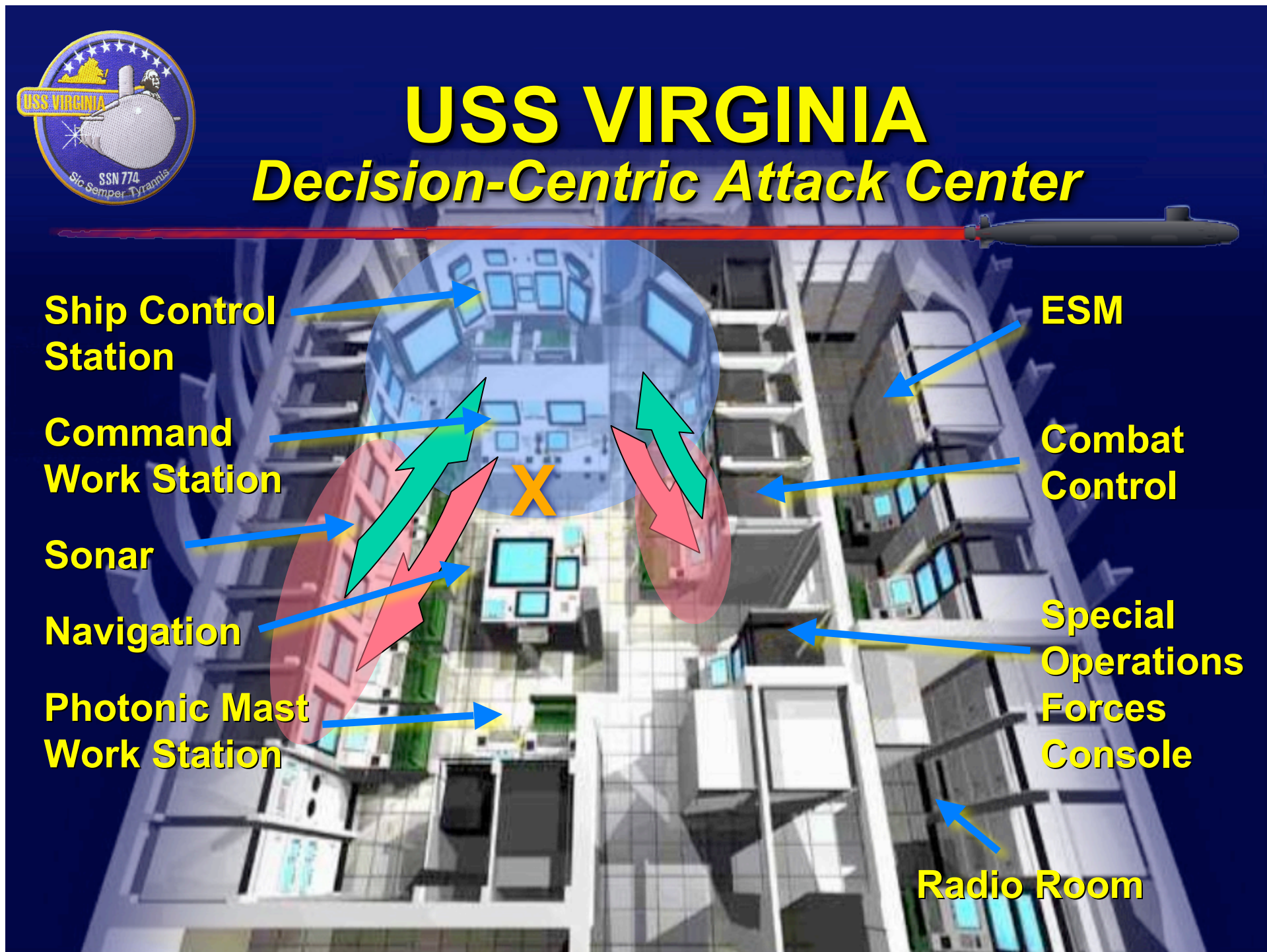
ESM

**Combat
Control**

**Special
Operations
Forces
Console**

Radio Room

X





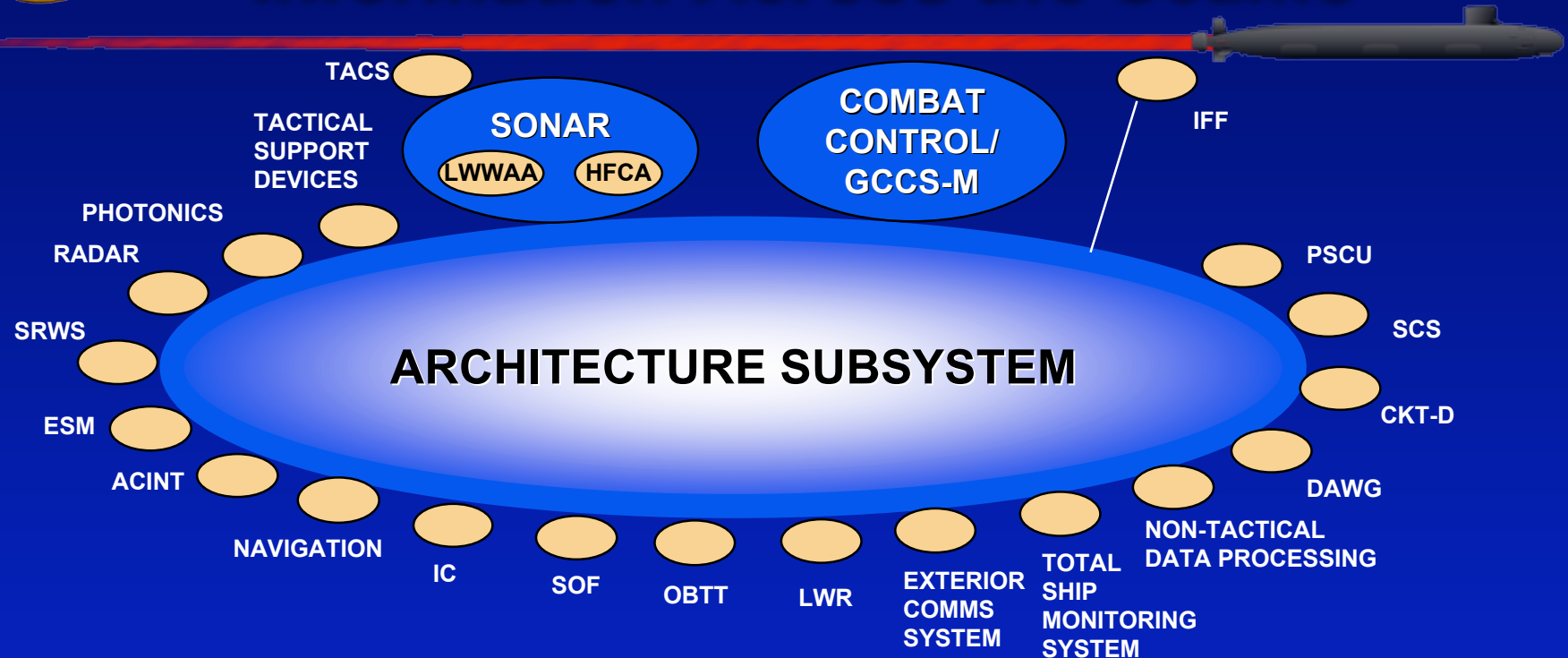
Equipment Recommendations

- Photonics Sensor Upgrades
 - Improved Color & IR camera resolution
 - High Level High Coverage in LWS of BOW
 - Patriot Radar
- Automated Information System (AIS)
- Harris Universal Imaging Transfer System (HUITs)
 - To support all-digital photonics suite
- Situational Awareness Displays
 - Wardroom, CO & XO Staterooms



Technical Challenges

Information Across the Seams



- **System of systems – many software seams**
- **Seams require bridges for information flow**
- **Improvements will drive**
 - Manning Reductions
 - Rapid, Sound Tactical Decisions



Data Across the Seams



Heading 028.3 deg Speed 6.2 kn Depth 100.0 ft Pitch 1.1 deg ↑

External Hydraulic Power Plant
Pump 1

Off

On

Off

On

Off

On

Off

On

Off

On

Off

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Ship Service Hydraulic Power Plant

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Pressure Levels (% Full) (psi)

Air Bank 5 100% 4486

107 psi Service Air HDR 96% 10

150 psi Service Air HDR 99% 14

700 psi Service Air HDR 99% 692

4500 psi Service Air HDR 99% 4457

PORT Ship Serv HYDR HDR 85% 2906

STBD Ship Serv HYDR HDR 88% 3009

Mast Group Hydraulic HDR 96% 1652

External Hydraulic HDR 93% 2803

EMBT Actuating Air 95% 4358

EMBT Air Bank 1 95% 4375

EMBT Air Bank 2 98% 4492

EMBT Air Bank 3 96% 4412

EMBT Air Bank 4 94% 4334

EMBT Air Bank 5 96% 4412

EMBT Air Bank 6 94% 4334

EMBT Air Bank 7 96% 4412

EMBT Air Bank 8 94% 4334

EMBT Air Bank 9 96% 4412

EMBT Air Bank 10 94% 4334

EMBT Air Bank 11 96% 4412

EMBT Air Bank 12 94% 4334

EMBT Air Bank 13 96% 4412

EMBT Air Bank 14 94% 4334

EMBT Air Bank 15 96% 4412

EMBT Air Bank 16 94% 4334

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EMBT Air Bank 11 96% 4412

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EMBT Air Bank 14 94% 4334

EMBT Air Bank 15 96% 4412

EMBT Air Bank 16 94% 4334

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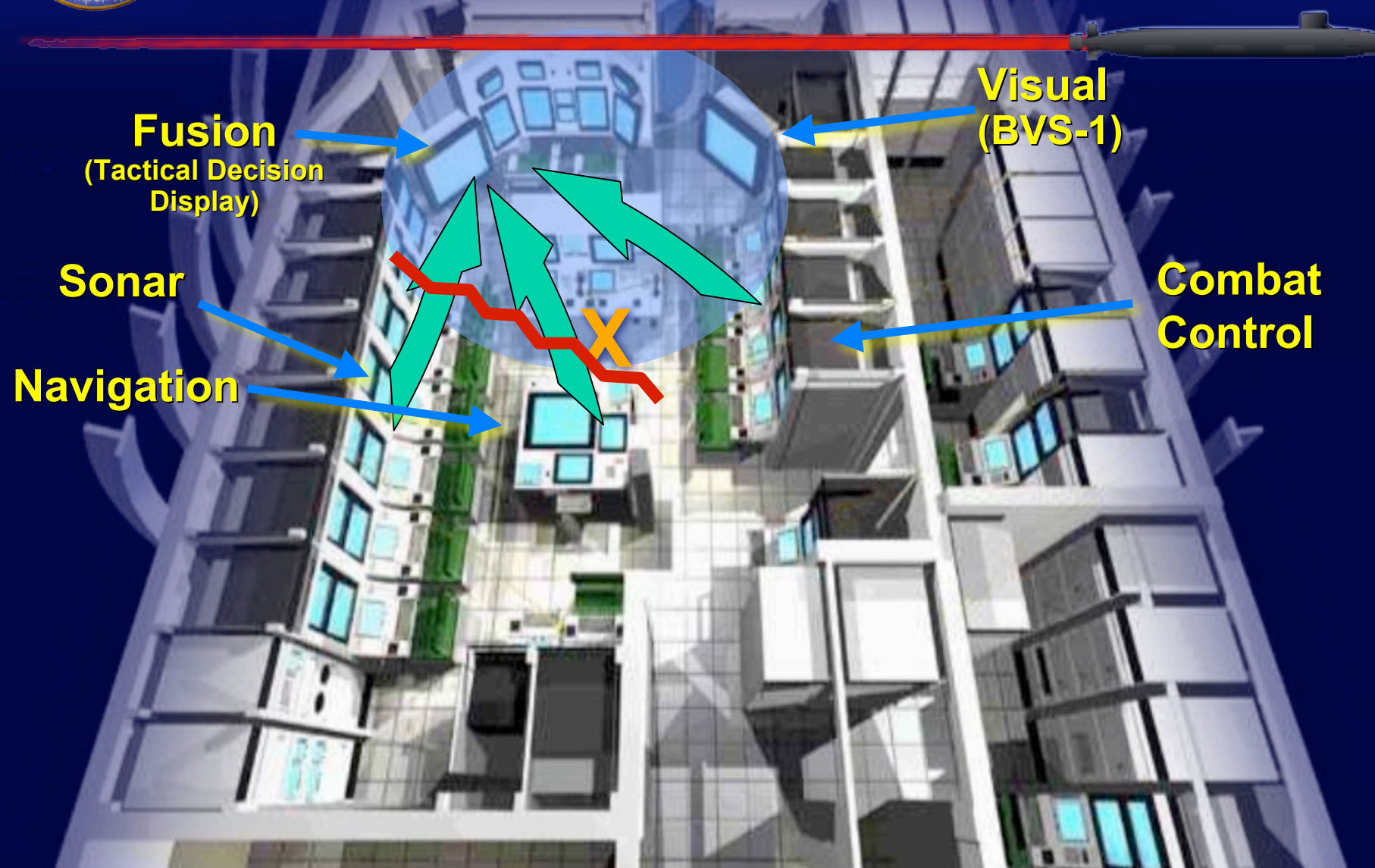
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Improve efficiency by designing out the human bridge

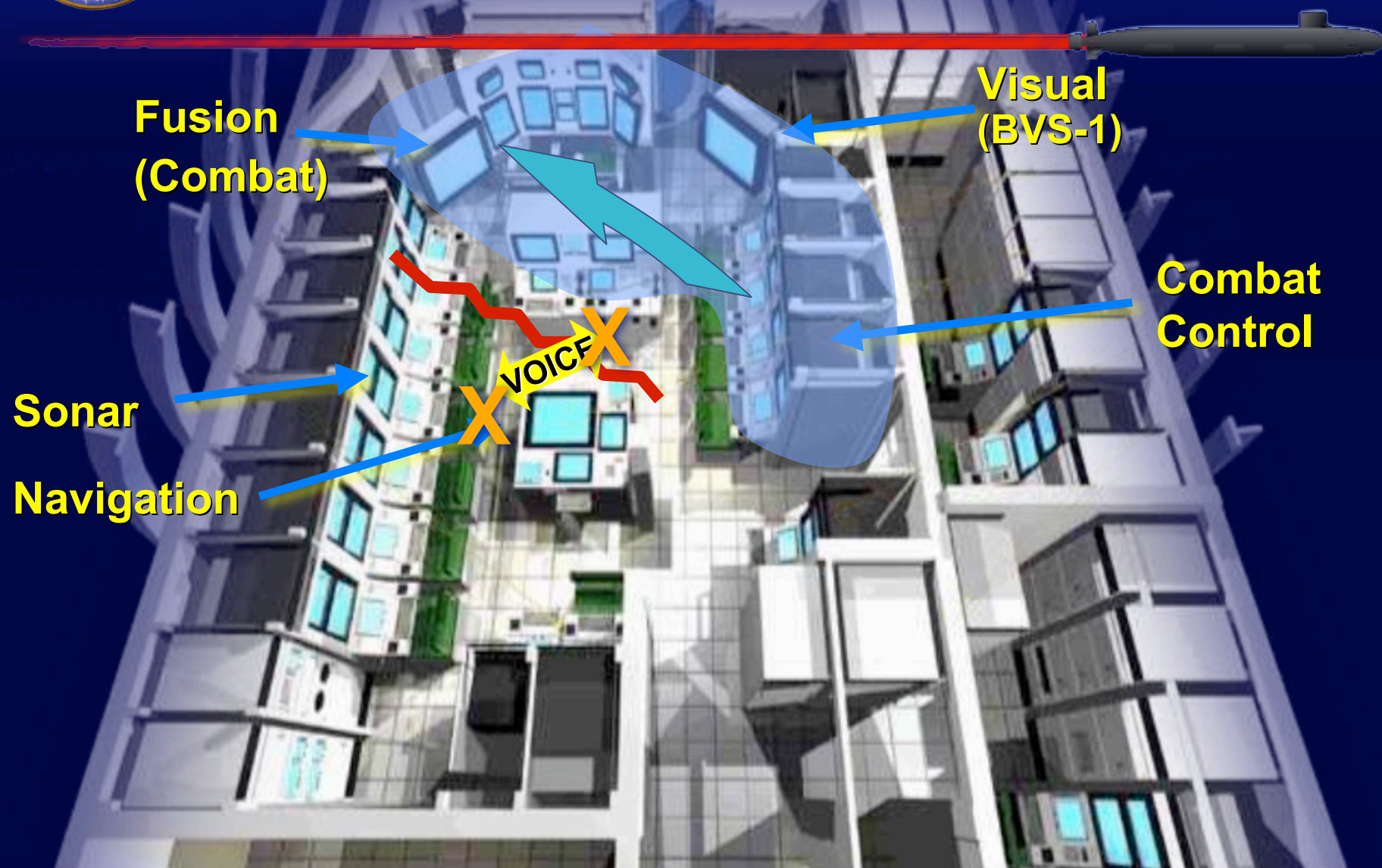


Decision Making





Decision Making





Avoid the Temptation...

- VIRGINIA has enough monitors
- Installs need to be 774 Class specific
- 774 \neq 688
 - We will suffer if we try to make the 774 'like' a 688 in pursuit of common logistics
- Must integrate within Architecture
 - Take advantage of existing data streams
 - Use existing display footprint
 - Desktop / Dashboard Model Works on 774

